The following data is the Toolkit requirements information for the Science Computing Facilities (SCF) that is stripped from the SDPTK document and placed in the following format to allow the information to be auto-loaded. The information shows the Level_4 requirement_id followed by the text for that requirement. ***(This data is new to RTM and is normally unlined to indicate so. However, it is not underlined here so that the data can be easily extracted for auto-load purposes.)***

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S-TKS-00020
Calling sequences of SCF Toolkit functions and SDP Toolkit functions shall be identical.

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S-TKS-00010
The interfaces provided by the SCF Toolkit functions to the science software shall either be identical to the interfaces provided by the SDP Toolkit functions to the science software, or they will be transparent emulations.

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S-TKS-00040
Logical file paths referenced by SCF Toolkit functions and SDP Toolkit functions shall be identical, i.e., all file references shall be by logical file names.

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S-TKS-00050
The SCF Toolkit shall provide the capability to run a production process in the SCF test environment.

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S-TKS-00060
The SCF Environment shall provide the capability for science software developers to generate a production script, capable of linking multiple Product Generation Executive (formerly Product Generation Executable) (PGEs) into a single SCF command.

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S-TKS-00080
The SCF Toolkit shall provide the capability to test all I/O transactions among PGEs that originate in the science software, in the same manner as the production environment.

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S-TKS-00090
The SCF Toolkit shall contain error/status handling and reporting capabilities identical to those available in the SDP Toolkit.

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S-TKS-00100
The SCF Toolkit shall contain versions that have been certified for each of the ECS approved computing platforms.

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S-TKS-00101
The SCF Toolkit shall exhibit its portability and adaptability by producing the same results (to an agreed upon tolerance) on each of the approved computing platforms.

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S-TKS-00123
SCF Toolkit source code shall be delivered to the SCFs.

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S-TKS-00140
The SCF Toolkit shall provide access to Level 0 data provided by science software developers and/or ESDIS.

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S-TKS-00141
The SCF Toolkit shall provide access to simulated orbit data for at least 1 day and 1 night (15 consecutive orbits).

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S-TKS-00170
A detailed user's guide for the SCF Toolkit shall be delivered, in both hardcopy and electronic versions, and shall include at a minimum detailed descriptions of the SDP Toolkit; all differences between the SCF and PDPS versions, both visible and invisible to Toolkit users, a set of sample production shell scripts; and sample makefiles.

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S-TKS-00180
All SDP Toolkit functions shall return error/status codes that can be detected and reported using error/status reporting tools.

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S-TKS-00120
The SCF version of the SDP Toolkit shall be POSIX compliant.

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S-TKS-00121
The SDP Toolkit shall provide bindings to ECS approved languages.

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S-TKS-00122
The SDP Toolkit shall be supported under the following UNIX shells: Bourne, csh and the Perl language.

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S-TKS-00190
The SDP Toolkit shall contain tools to open and close Science Data Processing Facility (SDPF), EOS Data and Operations System (EDOS)-generated Level 0 data sets or data sets from other sources as determined by the ESDIS Project.

* * * * * * * * * * *

S-TKS-00200
The SDP Toolkit shall contain tools to read Consultative Committee on Space Data Systems (CCSDS)-format packetized data from Level 0 data files. Data is assumed to be made available to the Toolkit in the native format of the computing platform the Toolkit is instantiated on.

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S-TKS-00220

The SDP Toolkit shall include the capability to provide the first CCSDS packet after a given time.

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S-TKS-00230
The SDP Toolkit shall contain tools to access the metadata located within Level 0 data files , (e.g., SDPF- and EDOS-generated header, accounting and quality information).

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S-TKS-00235
The SDP Toolkit shall contain tools to access the ECS-internal metadata that is associated with the Level 0 data files provided to a PGE.

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S-TKS-00240
The SDP Toolkit shall provide tools to access SDPF-, EDOS-provided telemetry data, or access to data sets from other sources as determined by the ESDIS Project.

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S-TKS-00271
The SDP Toolkit shall contain tools that list the contents of HDF files, and verify that the files are legal HDF files.

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S-TKS-00270
The SDP Toolkit shall contain tools that select data items within an HDF file, and read the selected data item, and optionally rewrite the HDF file with changes made to the data item.

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S-TKS-00290
The SDP toolkit shall contain tools that read from and write to metadata information contained in HDF files.

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S-TKS-00321
The SDP toolkit shall contain tools to read from and write to HDF files.

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S-TKS-00324
The SDP toolkit shall contain tools to convert a single instance of selected HDF datatypes into files in formats identified by the ESDIS project.

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S-TKS-00360
The SDP Toolkit shall contain tools to open and close generic files, including text and binary files. These generic files will be limited to those produced by an ECS approved language.

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S-TKS-00370
The SDP Toolkit shall support opening a metadata file.

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S-TKS-00380
The SDP Toolkit shall be able to read information from and write information to a metadata file containing standard product and science-software-specific information. This software specific information will include program version number; institutional source; and other identifying information approved by the ECS Project.

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S-TKS-00400
The SDP Toolkit shall be able to write a record of metadata in the metadata file using ECS standard structuring, and contain ECS standard, instrument specific and product specific attributes. The record will contain program variables and constants as well as values generated automatically (e.g., configuration information).

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S-TKS-00410
The SDP Toolkit shall be able to overwrite a record in the temporary metadata store during PGE execution with a new record.

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S-TKS-00430
The SDP Toolkit shall support closing a metadata file.

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S-TKS-00450
The SDP Toolkit shall support writing the ECS standard, instrument specific and product specific attributes into an ECS standard product file.

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S-TKS-00510
The SDP Toolkit shall contain tools that support three types of Q/A data: (1) flags; (2) graphics files, which are output directly from science processes; and (3) data that is written in the same format as a standard product file.

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S-TKS-00521
The SDP Toolkit shall contain a command tool for marking temporary files for deletion, enabling reuse of the logical file ID within the science software, while preserving the record of the defunct temporary file.

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S-TKS-00530
The SDP Toolkit shall create temporary file names such that each name is unique for a given DAAC.

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S-TKS-00531
SDP Toolkit shall contain a tool for creating "intermediate" files, whose longevity is determined by the user up to ECS defined limits, e.g., a temporary calibration file may be retained as an intermediate file from the last orbit's processing or a file kept for averaging purposes for several months.

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S-TKS-00535 The SDP Toolkit shall contain command tools for creating and retrieving intermediate and temporary file reference names at the level of the PGE's script.

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S-TKS-00580
The SDP Toolkit shall contain tools that can test for multi-level error/status conditions.

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S-TKS-00581
The SDP Toolkit shall provide an ordering for the multi-level error/status conditions thus enabling them to be used in conditional expressions.

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S-TKS-00582
The SDP Toolkit shall contain tools that allow the user to assert an error/status condition with a discrete severity level.

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S-TKS-00590
The SDP Toolkit shall support the following levels for error/status conditions: fatal error, general error, warning error, notice status, user-defined status, informational message status and success status.

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S-TKS-00591
The SDP Toolkit shall provide the means of associating an action message with one or more status conditions.

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S-TKS-00600
The SDP Toolkit shall contain tools for recording user and Toolkit-defined error and status reports to log files.

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S-TKS-00610
The SDP Toolkit shall contain tools to uniquely identify the software unit, science software program, product and production run in error and status messages.

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S-TKS-00620
The SDP Toolkit shall contain tools to identify the associated instrument within the error message codes.

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S-TKS-00630
The SDP Toolkit shall provide a tool for marking all user requested files and status logs for subsequent retrieval by the SCF.

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S-TKS-00631
The SDP Toolkit shall support a tool for transferring all report and status logs to an intermediate location.

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S-TKS-00632
The SDP Toolkit shall contain tools for integrating Commercial-off-the-Shelf (COTS) status messages into the Toolkit wherever the Toolkit uses that COTS software.

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S-TKS-00650
The SDP Toolkit shall contain tools to associate with error messages at least the following: what routine noted the error, error-type, pertinent variable data, and action taken.

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S-TKS-00660
The SDP Toolkit shall contain tools to allow science algorithms to enable error trapping mechanisms for non-processing relating signals, and to issue the appropriate signal handling routines to respond to these events.

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S-TKS-00661
The SDP Toolkit shall be capable of performing context-sensitive buffering of status message information in order to provide an optimal level of efficiency.

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S-TKS-00662
The SDP Toolkit shall prevent the proliferation of duplicate status messages from being recorded in the status log files.

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S-TKS-00663
The SDP Toolkit shall provide the tools to enable and disable status messaging for user-specified calls.

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S-TKS-00664
The SDP Toolkit shall provide the tools to ensure that user status codes are unique across the entire ECS system.

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S-TKS-01280
The SDP Toolkit shall provide tools to generate product identifiers that can be used by the script/PGE to label metadata with environment and PGE information in order to facilitate production tracking.

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S-TKS-01290
The SDP Toolkit shall provide tools to deliver runtime parameter data to the PGE.

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S-TKS-01291

The SDP Toolkit shall provide command tools to deliver runtime parameter data to the PGE's shell.

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S-TKS-01310
The SDP Toolkit shall provide tools for retrieving file metadata (also known as file attributes) that is associated with files staged by the Data Processing Subsystem.

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S-TKS-01311
The SDP Toolkit shall provide tools for performing PGE initialization and termination procedures to support PGE usage of the Toolkit.

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S-TKS-01312
The SDP Toolkit shall provide a command tool to facilitate the execution of a PGE and its' initialization and termination.

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S-TKS-01313
The SDP Toolkit shall provide a command tool to perform format checking on files containing Process Control information.

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S-TKS-01314
The SDP Toolkit shall provide a command tool for retrieving file metadata that is associated with files staged by the Data Processing Subsystem.

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S-TKS-01315
The SDP Toolkit shall provide a command tool to retrieve the number of physical file instances that are associated with a single logical file instance.

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S-TKS-01240
The SDP Toolkit shall provide tools which (1) dynamically allocate process-private memory (perhaps with limits) and (2) explicitly free dynamic memory within a program when it is no longer needed.

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S-TKS-01241
The SDP Toolkit shall provide tools which (1) allow a PGE to create a shared memory segment and (2) provide the means for applications within the PGE to access that shared memory segment for the duration of the PGE's execution.

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S-TKS-01600
The SDP Toolkit shall provide tools that perform bit and byte manipulation directly from applications developed in Fortran77.

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S-TKS-01360
The SDP Toolkit shall provide access to ancillary data sets used by several instrument processing systems.

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S-TKS-01362
The SDP toolkit shall provide interfaces to access, retrieve and selectively manipulate ancillary data sets as required by the ESDIS Project.

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S-TKS-01365
The SDP toolkit shall provide an interface that accepts simple searches for parameter values on a PARAMETER=VALUE basis and returns parameter values.

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S-TKS-00840
The SDP Toolkit shall provide a means to retrieve requested physical and geophysical parameters at specified locations from a selected data set. Data sets shall be those required by the ESDIS Project but will include as a minimum a Digital Elevation Model (DEM) and a land-sea mask.

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S-TKS-00850
The SDP Toolkit shall provide a means to retrieve regular grids or volumes of the required parameter defined by the upper left and bottom right vertices (x,y,z at each vertex).

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S-TKS-00870
The SDP Toolkit shall contain tools to access a land/sea classification database including coastal outlines.

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S-TKS-00980
The SDP Toolkit shall provide a means to retrieve elevation and terrain information from various terrain models at a specified latitude and longitude coordinate.

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S-TKS-01000
The SDP Toolkit shall provide a means to receive from various terrain models a regular grid of elevation from a rectangular area defined by the maximum extent of the rectangle.

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S-TKS-01030
The SDP Toolkit shall provide the functionality to retrieve elevation and related information from DEMs (e.g. error terms, variability of elevation) as available.

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S-TKS-01072

The SDP Toolkit shall provide tools to access images, where an API already exists.

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S-TKS-00931

The Toolkit shall provide access to physical and geophysical datasets to retrieve single or multiple parameters and values from requested points, areas or volumes.This will include National Meteorological Center (NMC) six hour global model temperature, moisture and ozone profiles; NMC six hour global model surface parameters; and weekly Special Sensor for Microwave Imaging (SSM/I) snow and ice data from NESDIS.

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S-TKS-01370

The SDP Toolkit shall provide an interface to perform simple linear interpolation in tspace between ancillary parameter points in geographically gridded data sets such as those in the NMC set.

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S-TKS-00680

Input to all relevant SDP Toolkit planetary body and spacecraft position access functions shall include spacecraft identification.

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S-TKS-00710

The SDP Toolkit shall use a single standard internal time in all ephemeris calculations.

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S-TKS-00720

The SDP Toolkit shall provide tools to return spacecraft position, velocity, attitude, and quaternion defining the rotation from spacecraft to Earth Centered Inertial reference frame for any given time or for a range of times, including provision for interpolation between state vectors.

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S-TKS-00740

SDP Toolkit shall have the capability to provide to the user quality information about position and attitude.

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S-TKS-01170

The SDP Toolkit shall provide tools to transform time among the six following systems:
a. Coordinated Universal Time (UTC) (Date and ASCII formats)
b. UT1 (binary and Julian Date formats)
c. International Atomic Time (TAI) (binary and Julian Date formats)
d. Julian Date (floating point format, in units of days)
e. spacecraft clock
f. Global Positioning System (GPS)

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S-TKS-01215

The SDP Toolkit shall contain tools to convert UTC to UT1 and ephemeris times.

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S-TKS-01220

The SDP Toolkit shall contain provision to transform UTC and TAI to and from Julian Day formats, and to provide UT1 as a Julian Date, as well as a difference from UTC.

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S-TKS-01160
The SDP Toolkit shall contain time system transformation tools that return UTC and TAI (International Atomic Time) times and Julian Dates that are of the same precision as the spacecraft clock.

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S-TKS-01180
Where applicable, the SDP Toolkit time system transformation tools shall return ASCII times that are in Consultative Committee for Space Data Systems (CCSDS) standard time code formats.

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S-TKS-01190
The SDP Toolkit time system transformation tools shall have the capability of returning TAI time in seconds from the start of a specified epoch.

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S-TKS-01210
The SDP Toolkit shall assure that leap seconds are accounted for in all time and date conversion tools for binary formats, and leap days/years for ASCII formats.

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S-TKS-00930
Geographic information access tools in the SDP Toolkit shall be capable of handling the north and south pole singularities, e.g., such a way that no failures, such as division by zero or erratic results in terms of positions will occur on approaching or passing over the poles.

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S-TKS-00760
The SDP Toolkit shall contain tools that return local solar time for a given UTC time and position on the Earth's surface, as well as solar right ascension and declination.

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S-TKS-00900
The toolkit shall provide access to Greenwich Mean and Greenwich Apparent Sidereal Time.

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S-TKS-00780
The SDP Toolkit shall contain tools that return a flag for the presence of a celestial body in the field of view.

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S-TKS-00800
The SDP Toolkit shall contain a tool that returns the Earth-Centered Inertial (ECI) vector from the Earth to the sun, moon, and planets at a given time.

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S-TKS-00810
The SDP Toolkit shall contain a tool that returns the Satellite-Centered Inertial (SCI) vector from the Satellite to the sun, moon, and planets at a given time.

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S-TKS-01050
The SDP Toolkit shall provide the following lower level coordinate system bi-directional transformations:
a. spacecraft reference to orbital reference
b. Earth-Centered Inertial (ECI) to Earth-Centered Rotating (ECR)
c. ECR to geodeticd. ECI to spacecraft reference
e. ECI to orbital reference

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S-TKS-01080
The SDP Toolkit shall provide the latitude and longitude of the intersection of the earth reference ellipsoid with the instrument look vector in the spacecraft reference frame at an arbitrary time.

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S-TKS-01083
The SDP Toolkit shall provide a tool to geolocate every pixel (with its own look angle).

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S-TKS-01060
The SDP Toolkit shall provide the sub-satellite point and ground track velocity vector at any arbitrary time.

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S-TKS-01090
The SDP Toolkit shall provide a tool to determine a given point on earth is in an instrument field of view at any designated time. Parameters that determine instrument field-of-view relative to a platform are assumed to be supplied by instrument teams.

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S-TKS-01091
The SDP Toolkit shall provide the capability of determining the terrestrial zenith angle and azimuth of the look vector, as well as the vectors to any celestial body, at any specified latitude, longitude and altitude.

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S-TKS-01092
The SDP Toolkit shall provide the capability of determining the angle of refraction of the look vector, other vectors at the look point and the displacement of the ray at the look point due to refraction, under mean atmospheric conditions.

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S-TKS-00860
The SDP Toolkit shall contain a tool to determine if a given point on the earth's surface is in day or in night.

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S-TKS-00770

The SDP Toolkit shall contain tools that return Greenwich Hour Angle for a given time.

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S-TKS-00910
The SDP Toolkit shall provide a tool to transform a position and velocity vector between J2000 and true of date coordinate systems.

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S-TKS-00912
The SDP Toolkit shall provide a tool to transform a position and velocity vector between J2000 and mean of date coordinate systems.

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S-TKS-00914
The SDP Toolkit shall provide a tool to transform a position and velocity vector between mean of date and true of date coordinate systems.

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S-TKS-00916
The SDP Toolkit shall provide a tool to provide the angles of nutation in longitude and obliquity and their respective rates at a given time.

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S-TKS-01500
The SDP toolkit shall support the bi-directional transformation between coordinates in the Cartesian ellipsoid reference frame and the Space Oblique Mercator, Universal Transverse Mercator, Polar Stereographic, and the Goodes Interrupted Homolosine Projections.

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S-TKS-01502
The SDP Toolkit geo-coordinate transformation tools shall support the transformation of multiple coordinate vectors in a single call.

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S-TKS-01245
The SDP Toolkit shall provide tools to accomplish various mathematical and statistical tasks including, but not limited to:
a. solution of linear algebraic equations, matrix manipulation, matrix inversion and Eigenvalue decomposition
b. interpolation and extrapolation
c. integration and evaluation of functions
d. root finding
e. determination of min/max of functions
f. statistical description of data
g. discrete Fourier Transforms and polynomial fits

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S-TKS-01520
The SDP Toolkit shall provide a means of accessing commonly used mathematical and physical constants.

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S-TKS-01521
The SDP Toolkit shall provide a means of accessing constant values related to an instrument.

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S-TKS-01522
The values of the parameters in S-TKS-01520 and S-TKS-01521 shall be capable of adjustment without recompilation of a PGE.

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S-TKS-01530
The SDP Toolkit shall provide a means to perform unit conversions and parameter translations.

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S-TKS-01410
The SDP Toolkit shall provide tools for producing graphics output from production software.

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S-TKS-01415
The SDP Toolkit shall provide tools for image processing; for map projections; correlations and registration; filters; contrast enhancement.

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TABLE TKS-1: Table TKS-1 shows the mandatory attributes for the SCF release Level_4 requirements. These requirement attributes shall be added to RTM MAIN along with the text for each requirement.

Req Id	SCF Rel	Req Type	Req Status	Verific Method
S-TKS-00010	TK5	functional	approved	demo, inspection
S-TKS-00020	TK5	functional	approved	inspection
S-TKS-00040	TK5	functional	approved	demo, inspection
S-TKS-00050	TK5	functional	approved	demo
S-TKS-00060	TK5	functional	approved	demo
S-TKS-00080	TK5	functional	approved	demo
S-TKS-00090	TK5	functional	approved	demo, inspection
S-TKS-00100	TK5	procedural	approved	inspection
S-TKS-00101	TK5	procedural	approved	demo
S-TKS-00120	TK5	functional	approved	demo, inspection
S-TKS-00121	TK5	functional	approved	demo, inspection
S-TKS-00122	TK5	functional	approved	test
S-TKS-00123	TK5	procedural	approved	inspection
S-TKS-00140	TK5	functional	approved	demo
S-TKS-00141	TK5	functional	approved	demo
S-TKS-00170	TK5	procedural	approved	inspection
S-TKS-00180	TK5	functional	approved	demo
S-TKS-00190	TK5	functional	approved	demo
S-TKS-00200	TK5	functional	approved	demo
S-TKS-00220	TK5	functional	approved	demo
S-TKS-00230	TK5	functional	approved	demo
S-TKS-00235	TK5	functional	approved	demo
S-TKS-00240	TK5	functional	approved	demo
S-TKS-00270	TK5	functional	approved	demo
S-TKS-00271	TK5	functional	approved	demo
S-TKS-00290	TK5	functional	approved	demo
S-TKS-00321	TK5	functional	approved	demo
S-TKS-00324	TK5	functional	approved	demo
S-TKS-00360	TK5	functional	approved	demo
S-TKS-00370	TK5	functional	approved	demo
S-TKS-00380	TK5	functional	approved	demo
S-TKS-00400	TK5	functional	approved	demo
S-TKS-00410	TK5	functional	approved	demo
S-TKS-00430	TK5	functional	approved	demo
S-TKS-00450	TK5	functional	approved	demo
S-TKS-00510	TK5	functional	approved	demo
S-TKS-00521	TK5	functional	approved	demo
S-TKS-00530	TK5	functional	approved	demo
S-TKS-00531	TK5	functional	approved	demo
S-TKS-00535	TK5	functional	approved	demo
S-TKS-00580	TK5	functional	approved	demo
S-TKS-00581	TK5	functional	approved	demo
S-TKS-00582	TK5	functional	approved	demo
S-TKS-00590	TK5	functional	approved	demo
S-TKS-00591	TK5	functional	approved	demo

S-TKS-00600	TK5	functional	approved	demo
S-TKS-00610	TK5	functional	approved	demo
S-TKS-00620	TK5	functional	approved	demo
S-TKS-00630	TK5	functional	approved	demo
S-TKS-00631	TK5	functional	approved	demo
S-TKS-00632	TK5	functional	approved	demo
S-TKS-00650	TK5	functional	approved	demo
S-TKS-00660	TK5	functional	approved	demo
S-TKS-00661	TK5	functional	approved	demo
S-TKS-00662	TK5	functional	approved	demo
S-TKS-00663	TK5	functional	approved	demo
S-TKS-00664	TK5	functional	approved	demo
S-TKS-00680	TK5	functional	approved	demo
S-TKS-00710	TK5	functional	approved	demo
S-TKS-00720	TK5	functional	approved	demo
S-TKS-00740	TK5	functional	approved	demo
S-TKS-00760	TK5	functional	approved	demo
S-TKS-00770	TK5	functional	approved	demo
S-TKS-00780	TK5	functional	approved	demo
S-TKS-00800	TK5	functional	approved	demo
S-TKS-00810	TK5	functional	approved	demo
S-TKS-00840	TK5	functional	approved	demo
S-TKS-00850	TK5	functional	approved	demo
S-TKS-00860	TK5	functional	approved	demo
S-TKS-00870	TK5	functional	approved	demo
S-TKS-00900	TK5	functional	approved	demo
S-TKS-00910	TK5	functional	approved	demo
S-TKS-00912	TK5	functional	approved	demo
S-TKS-00914	TK5	functional	approved	demo
S-TKS-00916	TK5	functional	approved	demo
S-TKS-00930	TK5	functional	approved	demo
S-TKS-00931	TK5	functional	approved	demo
S-TKS-00980	TK5	functional	approved	demo
S-TKS-01000	TK5	functional	approved	demo
S-TKS-01030	TK5	functional	approved	demo
S-TKS-01050	TK5	functional	approved	demo
S-TKS-01060	TK5	functional	approved	demo
S-TKS-01072	TK5	functional	approved	demo
S-TKS-01080	TK5	functional	approved	demo
S-TKS-01083	TK5	functional	approved	demo
S-TKS-01090	TK5	functional	approved	demo
S-TKS-01091	TK5	functional	approved	demo
S-TKS-01092	TK5	functional	approved	demo
S-TKS-01160	TK5	functional	approved	demo
S-TKS-01170	TK5	functional	approved	demo
S-TKS-01180	TK5	functional	approved	demo
S-TKS-01190	TK5	functional	approved	demo
S-TKS-01210	TK5	functional	approved	demo
S-TKS-01215	TK5	functional	approved	demo
S-TKS-01220	TK5	functional	approved	demo
S-TKS-01240	TK5	functional	approved	demo
S-TKS-01241	TK5	functional	approved	demo

S-TKS-01245	TK5	functional	approved	demo
S-TKS-01280	TK5	functional	approved	demo
S-TKS-01290	TK5	functional	approved	demo
S-TKS-01291	TK5	functional	approved	demo
S-TKS-01310	TK5	functional	approved	demo
S-TKS-01311	TK5	functional	approved	demo
S-TKS-01312	TK5	functional	approved	demo
S-TKS-01313	TK5	functional	approved	demo
S-TKS-01314	TK5	functional	approved	demo
S-TKS-01315	TK5	functional	approved	demo
S-TKS-01360	TK5	functional	approved	demo
S-TKS-01362	TK5	functional	approved	demo
S-TKS-01365	TK5	functional	approved	demo
S-TKS-01370	TK5	functional	approved	demo
S-TKS-01410	TK5	functional	approved	demo
S-TKS-01415	TK5	functional	approved	demo
S-TKS-01500	TK5	functional	approved	demo
S-TKS-01502	TK5	functional	approved	demo
S-TKS-01520	TK5	functional	approved	demo
S-TKS-01521	TK5	functional	approved	demo
S-TKS-01522	TK5	functional	approved	demo
S-TKS-01530	TK5	functional	approved	demo
S-TKS-01600	TK5	functional	approved	demo